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Effects of Aluminum Toxicity on the Early Growth of Contrasting *Brachiaria brizantha* Genotypes.

Leônidas P. Passos¹, Maria Coletta Vidigal¹, Aline Rodrigues Soares¹, Julieta de J. da Silveira Neta¹, Cacilda Borges do Valle², and Danielle da Nova B. de Castro¹. (1) Embrapa Dairy Cattle, Juiz de Fora, MG, 36038-330, Brazil, (2) Embrapa Beef Cattle, Campo Grande, MS, 79002-970, Brazil

Aiming at early genotypic selection, a study was carried out to evaluate the responses of contrasting *Brachiaria brizantha* genotypes to aluminum toxicity. In vitro miniaturized 30-day-old seedlings of 2PI9B, 3PI9A, 7PI9B, 9PI1A, 12PI1B, and 14PI9B hybrids were exposed to Hoagland nutrient solution with 4, 5 or 6 mg/L of toxic aluminum or maintained in aluminum-free medium at pH 4 or free pH. After a growth period of 60 days under controlled conditions, the plants were harvested and evaluated. The essays were conducted as completely randomized design and data were statistically analyzed through ANOVA. Nutrient solution at the lowest pH caused reductions in root length of 9PI1A and 12PI1B hybrids, but such an effect would not be verified if toxic aluminum were added. Regarding the responses to toxic aluminum, root length was the most discriminating variable for revealing differential genotype behavior. As overall root length means comparatively decreased among genotypes, in the order 14PI9B, 9PI1A, 12PI1B, 2PI9B, 7PI9B and 3PI9A, the magnitude of detrimental aluminum addition effects was reduced and reached non-significant levels with 7PI9B and 3PI9A. Fresh and dry weight of roots or aerial parts yielded non-significant trends, but root length-based aluminum-resistant genotypes showed the lowest FW and DW means. There was no significant influence of aluminum addition on chlorophyll level or relative water content, suggesting that aluminum toxicity is unlikely to substantially alter photosynthetic capabilities or water uptake. Root and leaf growing tissue SDS-PAGE polypeptide profiles and their subsequent quantification through densitometry revealed that protein configuration was not modified by either low pH or aluminum toxicity. The results suggest that genotypes with higher growth rates are likely to show higher sensitivity to toxic aluminum. However, further evaluations with a greater number of genotypes are needed for a better understanding of such a trend.

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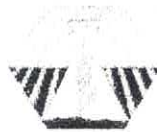
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